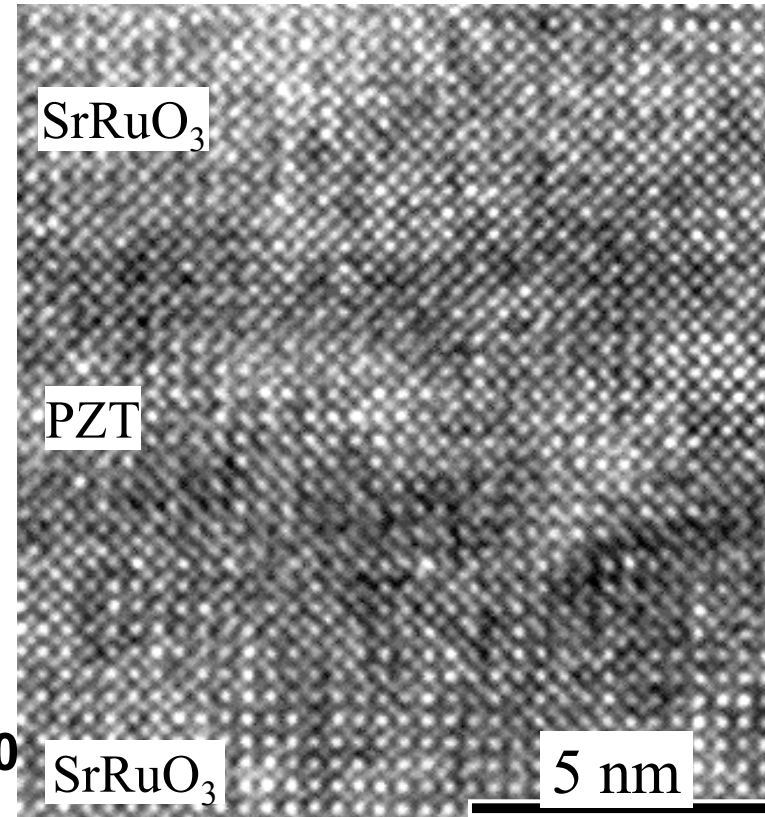
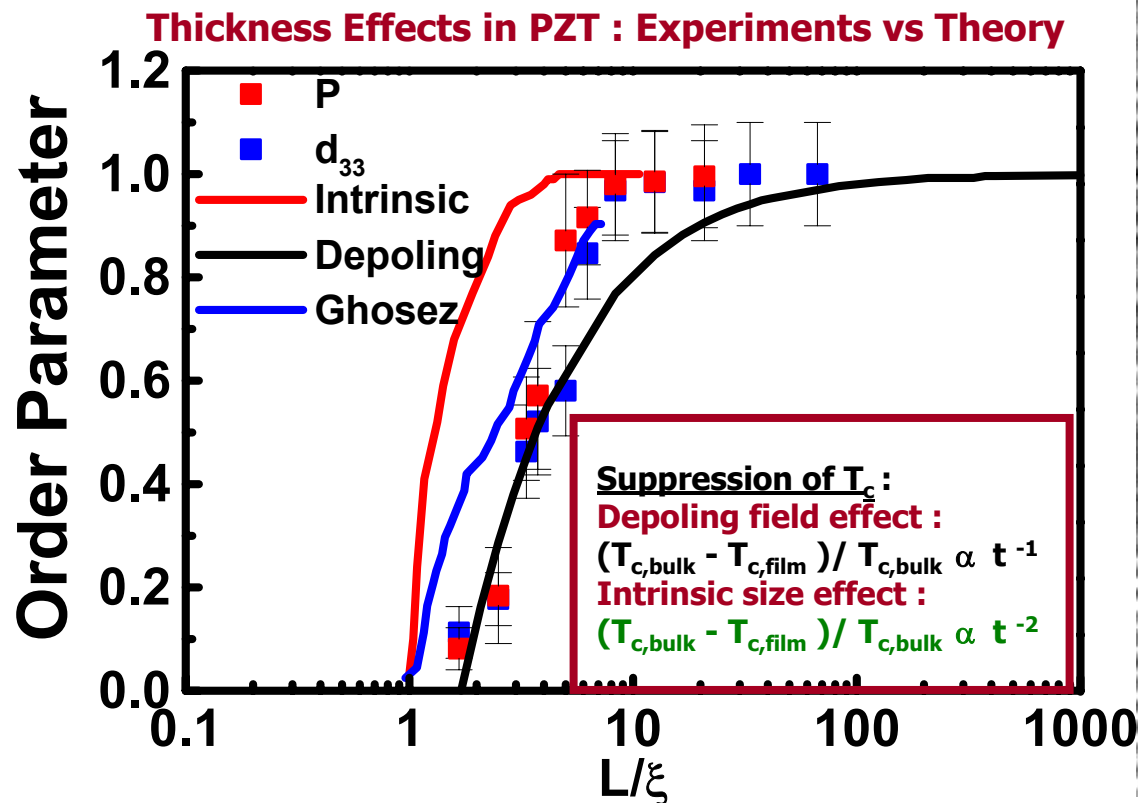


Size Effects in Ferroelectrics

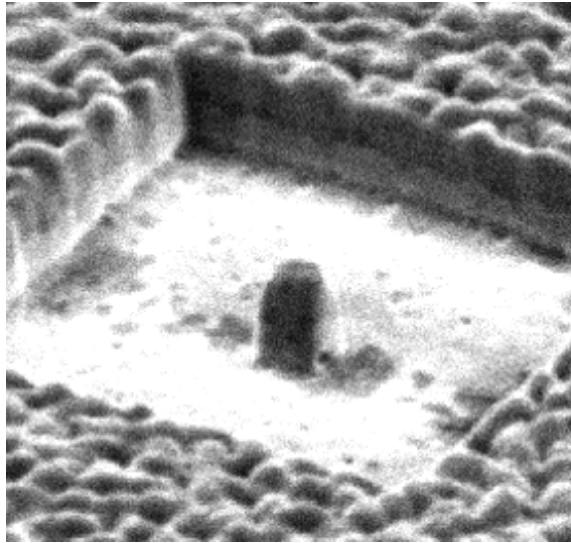
R. Ramesh (UMCP) ; V. Nagarajan, H.H. Kohlstedt, U. Bottger and R. M. Waser (RWTH-Aachen)

This work is supported by a NSF US-Europe program under contract No. DMR-0244288

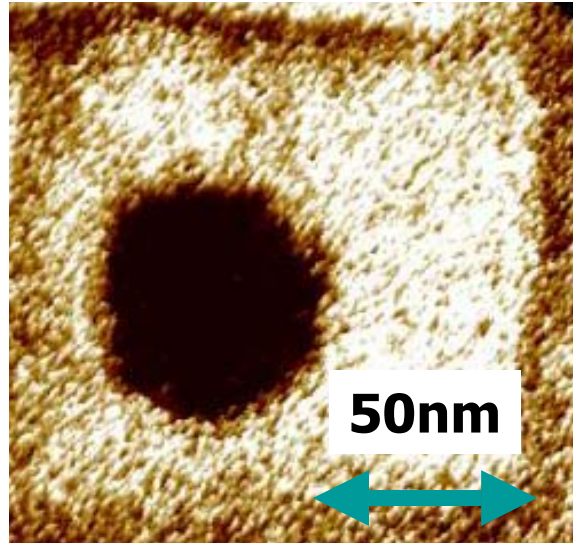
This research is focused on understanding the fundamental science of size effects in ferroelectric thin films. Using a combination of careful thin film growth, implementation of a novel scanned probe technique to probe the physical responses and theoretical models, we show that there is indeed a suppression of the ferroelectric order parameter caused primarily due to the effect of depoling fields at the electrode-ferroelectric interface. This work is supported by a US-Europe (NSF-DFG) program and by the University of Maryland MRSEC.



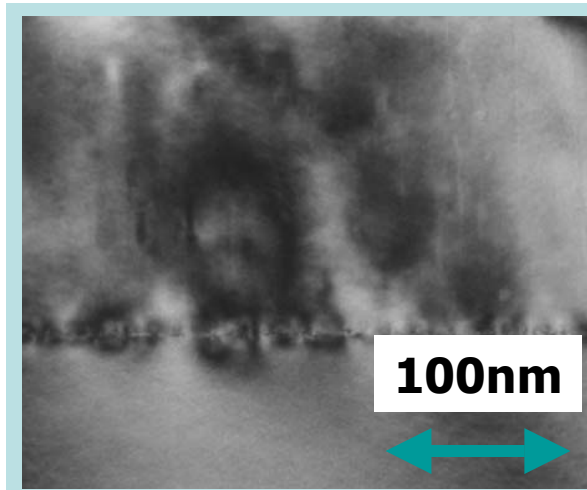
Various Length Scales in Ferroelectric Thin Films



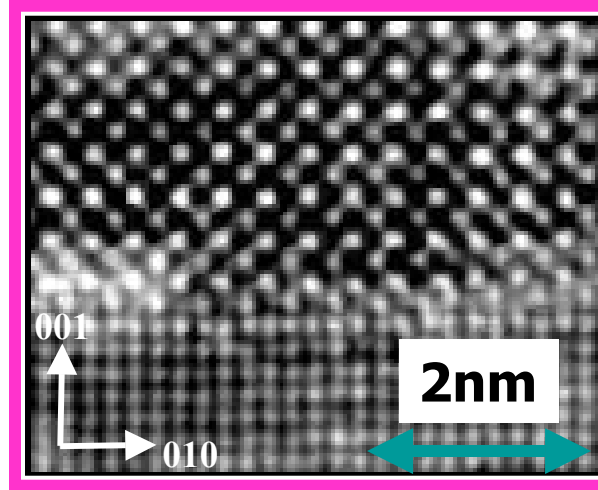
$1\mu\text{m}$ – 100nm



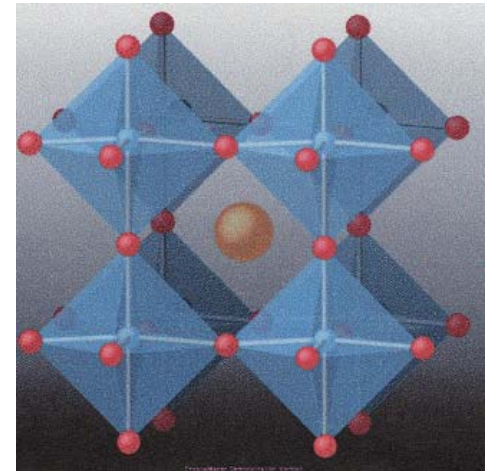
100nm – 20nm



$1\mu\text{m}$ – 100nm



100nm – 20nm



20nm – 1nm

